

WHAT IS CLAIMED IS

1. An array of RF antenna elements or sub-arrays, said array comprising:
a plurality of antenna elements or sub-arrays spatially distributed over an array aperture;
at least some of said antenna elements or sub-arrays each including at least one active antenna element and at least one parasitic element associated with said active element, and at least one controllably variable reactance load connected to said at least one parasitic element; and
an array controller connected to control at least said variable reactance loads thereby to control, at least in part, a predetermined characteristic of said array.
2. An array as in claim 1 wherein said array controller is also connected to control RF signals being fed to/from said active elements thereby to control, at least in part, a predetermined characteristic of said array.
3. A method for controlling at least one predetermined characteristic of an array of RF antenna elements or sub-arrays, said method comprising:
arranging a plurality of antenna elements or sub-arrays spatially distributed over an array aperture;
including in at least some of said antenna elements or sub-arrays at least one active antenna element and at least one parasitic element associated with said active element, and at least one controllably variable reactance load connected to said at least one parasitic element; and

controlling changes in at least said variable reactance loads thereby to control, at least in part, a predetermined characteristic of said array.

4. A method as in claim 2 further comprising:

controlling RF signals being fed to/from said active elements thereby to control, at least in part, a predetermined characteristic of said array.

5. A method for providing a reconfigurable antenna, said method comprising:

selectively placing controlled parasitic elements in the aperture of plural antenna elements in a phased array; and

controlling said parasitic elements to change the operational characteristics of the corresponding antenna elements.

6. A method as in claim 5 wherein said parasitic elements are controlled by either switching load values in and out that are connected to the parasitic elements or by applying control voltages to variable reactance circuits.

7. A method as in claim 6 wherein at least some of said variable reactance circuits include a reactor.

8. A method as in claim 5 wherein parasitic elements are controlled by use of a feedback control subsystem adjusts RF properties of the parasitic components based on an observed metric.

9. A method as in claim 5 wherein the parasitic elements are controlled to effect changes in at least one of the group of characteristics consisting of directivity, frequency tuning, instantaneous bandwidth and radar section.